

Chemistry 334

Examination #2

April 16, 2004

Professor Charonnat

Name: _____

Be certain that your examination has five (5) pages including this one.

Put your name on **each** page of this examination booklet.

By putting your name on this examination booklet you agree to abide by California State University, Northridge policies of academic honesty and integrity.

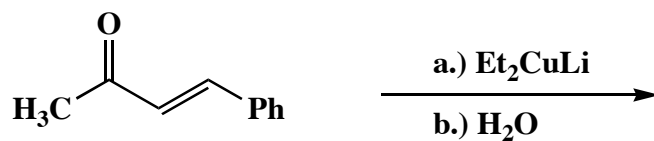
Molecular models are allowed for this examination. Calculators are unnecessary and are not allowed.

Name: _____

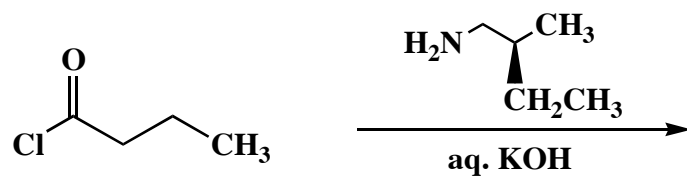
1. (25 points)

Draw the structure of the expected major organic product for each of the following five (5) questions. Clearly specify stereochemistry, if relevant.

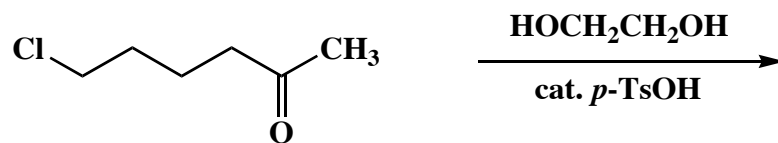
A.



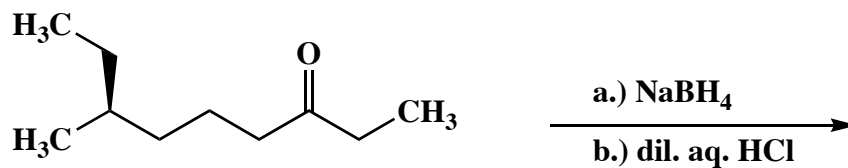
B.



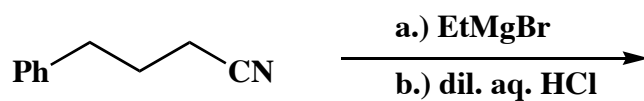
C.



D.



E.



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2. (25 points)

Circle the number that corresponds to the correct answer for each of the following five (5) questions.

A. When sterically hindered dialkylboranes react with 1-decyne, the boron bonds to:

1. C1 exclusively
2. C2 exclusively
3. C1 and C2 equally likely

B. Diazomethane reacts with carboxylic acids to form methyl esters. The reagent acts:

1. only as a base
2. only as an electrophile
3. as a base, first, and then as an electrophile

C. When a Grignard reagent reacts with an unsymmetrical anhydride, the reagent bonds to:

1. the more hindered carbonyl carbon
2. the less hindered carbonyl carbon
3. either carbonyl carbon

D. Acetal formation requires:

1. a catalytic amount of acid
2. a stoichiometric amount of acid
3. more than a stoichiometric amount of acid

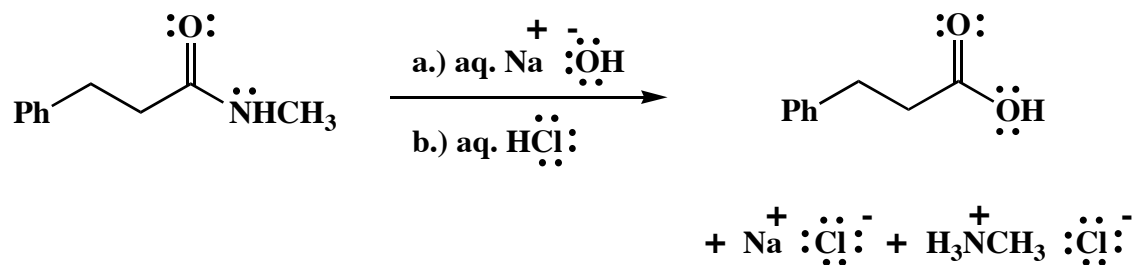
E. What species bond to the β -position of α,β -unsaturated ketones?

1. electrophiles
2. nucleophiles
3. both

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3. (25 points)

Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Show all intermediates and denote all lone pair electrons, formal charges and countercharges where appropriate.

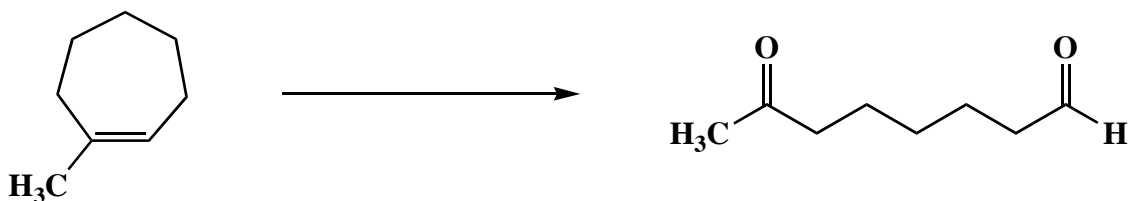


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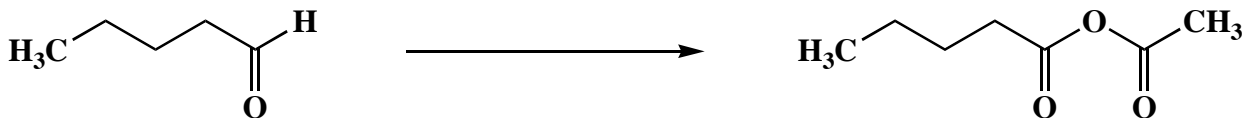
4. (25 points)

Write the specific reagent(s) necessary to effect the transformation shown, for each of the following three (3) questions. If more than one reaction is involved in an answer, be certain to distinguish the individual steps clearly.

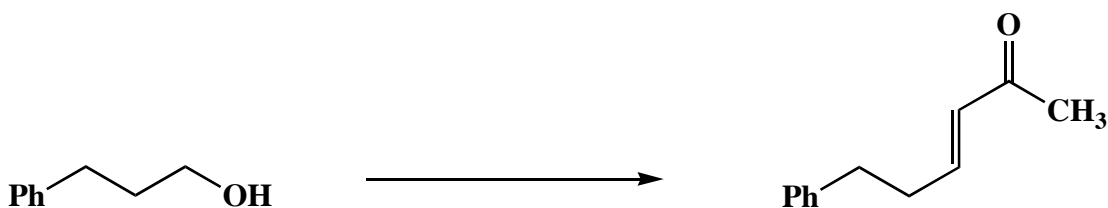
A.



B.



C.



Congratulations!

1	/25
2	/25
3	/25
4	/25
Total:	/100